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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/603,653	06/26/2003	Bo Carlstrom	024445-354	4028
55694	7590	11/07/2005		
DRINKER BIDDLE & REATH (DC) 1500 K STREET, N.W. SUITE 1100 WASHINGTON, DC 20005-1209			EXAMINER GAY, JENNIFER HAWKINS	
			ART UNIT	PAPER NUMBER
			3672	

DATE MAILED: 11/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/603,653	CARLSTROM ET AL.	
	Examiner	Art Unit	
	Jennifer H. Gay	3672	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-11 and 13-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3-11 and 13-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 October 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☒ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

Drawings

2. The drawings are objected to because of the following informalities:
 - In Figure 3A the section lines “B-B” and “C-C” should be changed to either Roman or Arabic numerals. The Brief Description of the Drawings should be amended accordingly.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claim 16 is objected to because of the following informalities: there is insufficient antecedent basis for “the male portion” in line 6, “the imaginary cylinder” in line 8, and “the crest” in line 9. Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 3-6 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Liljebrand et al. (US 2002/0074797, referred to hereafter as Lil).

Regarding claim 16: Lil discloses a male portion for percussion drilling. The portion includes the following features:

- A front end portion on which external thread is provided (Figure 2).
- An end surface that includes an abutment surface 19.
- A first cross-section area **15A, D1** along a region of the portion where the thread has a full profile that extends all the way to a last turn.
- A length **L1** that is defined by a plane of the abutment surface to a point where the thread ceases to be at full profile (this would correspond to the length of the first thread **15A**).
- The ratio of the diameter of the cylinder to the diameter of the full profile section is between 1 and 2 (paragraph [0015]).
- An imaginary cylinder touches the crest of the full profile section
- The thread includes a last turn **15B, 22** whose cross-sectional area gradually increases to be greater than the first cross-sectional area to define a thread exit.

Regarding claims 3-5: The range may be between 1.3 and 1.6 with the diameter being less than 37mm.

Regarding claim 6: The male thread is fixedly connected to the end of a drill steel that has a flow channel **20** therethrough.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 7-11, 13-15, and 17 are rejected under 35 U.S.C. 102(b) as anticipated by Lil or, in the alternative, under 35 U.S.C. 103(a) as obvious over Lil in view of Larsson (US 6,767,156).

Regarding claim 7: Lil discloses a drill bit (paragraph [0014] recites that the male 15 and female 16 portions of the drill steel can be located on the same drill steel and thus a drill bit would inherently include the cooperating set of threads) for percussive rock drilling. The bit includes the following features:

- An end portion having a central recess having an internal thread provided along the length of the recess (Figure 3).
- An abutment surface 30 located on the inner end of the recess.
- A length defined from the impact surface to a point where an imaginary coaxial circular cylinder ceases to contact a crest of the thread, i.e. at the transition point 28, L4.
- The ratio of the diameter of the cylinder to the length is between 1 and 2 (paragraph [0018]).

Regarding claims 8-10: The range may be between 1.3 and 1.6 with the diameter of the cylinder being less than 36 mm.

Regarding claim 11: The female thread is fixedly connected to the end of a drill steel that has a flow channel 20 therethrough.

Regarding claim 17: Lil discloses a threaded joint between a male portion and a drill bit. The joint includes the following features:

- The male portion includes the following features:
 - A front end portion on which external thread is provided (Figure 2).

Art Unit: 3672

- An end surface that includes an abutment surface **19**.
 - A first cross-section area **15A, D1** along a region of the portion where the thread has a full profile that extends all the way to a last turn.
 - A length **L1** that is defined by a plane of the abutment surface to a point where the thread ceases to be at full profile (this would correspond to the length of the first thread **15A**).
 - The ratio of the diameter of the cylinder to the diameter of the full profile section is between 1 and 2 (paragraph [0015]).
 - An imaginary cylinder touches the crest of the full profile section
 - The thread includes a last turn **15B, 22** whose cross-sectional area gradually increases to be greater than the first cross-sectional area to define a thread exit.
- The drill bit or female portion includes the following features:
- An end portion having a central recess having an internal thread provided along the length of the recess (Figure 3).
 - An abutment surface **30** located on the inner end of the recess.
 - A length defined from the impact surface to a point where an imaginary coaxial circular cylinder ceases to contact a crest of the thread, i.e. at the transition point **28, L4**.
 - The ratio of the diameter of the cylinder to the length is between 1 and 2 (paragraph [0018]).

Regarding claims 13-15: The range for both the male and female portions may be between 1.3 and 1.6 with the diameter of each cylinder being less than 37 mm.

If applicant traverses the above rejection of claims 7 and 12, the following alternate rejection is given.

Art Unit: 3672

Lil discloses all of the limitations of the above claims except for the disclosed female threads being located within a drill bit.

Larsson discloses a threaded coupling for percussion drilling that is similar to that of Lil. Larsson further teaches using a threaded coupling that was first taught as being used to connected drill steels to connect a drill steel to a drill bit (Figure 4) with the drill bit including the female threads.

It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have modified the threaded coupling of Lil such that the female threads were located within a drill bit as taught by Larsson in order to have eliminated the need for a special drill steel to connect the drill bit the drill string. This would have reduced the cost of the drilling operation by limiting the different equipment required and would have strengthened the drill string.

Response to Arguments

8. Applicant's arguments filed 04 October 2005 have been fully considered but they are not persuasive.

The objection to the drawings regarding the section lines has been repeated as section lines may by **only** Roman or Arabic numerals and cannot contain letters.

Applicant has argued that Lil does not teach the threaded portion extending all the way to the last turn of the thread. The examiner notes that elements **15B** and **22** are considered to include the "last thread".

Applicant has argued that the ratio of length to diameter of the female portion of Lil is not between 1 and 2 but rather less than 1 because the cited length of the threads **16A** does not include the space prior to the abutment surface. While it is correct that the cited length does not take that space into consideration, the diameter of the threads **16A** is the same from the abutment surface to the transition area **28** thus the length extends from the abutment surface to the bottom of **L4**. Thus it can be clearly seen that the ratio of the length to the diameter is between 1 and 2.

Conclusion

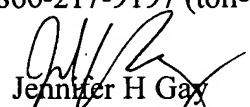
9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

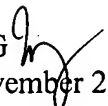
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer H. Gay whose telephone number is (571) 272-7029. The examiner can normally be reached on Monday-Thursday, 6:30-4:00 and Friday, 6:30-1:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bagnell can be reached on (571) 272-6999. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jennifer H. Gay
Primary Examiner
Art Unit 3672

JHG 
November 2, 2005